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Plan Your Farm for Good Farm Living

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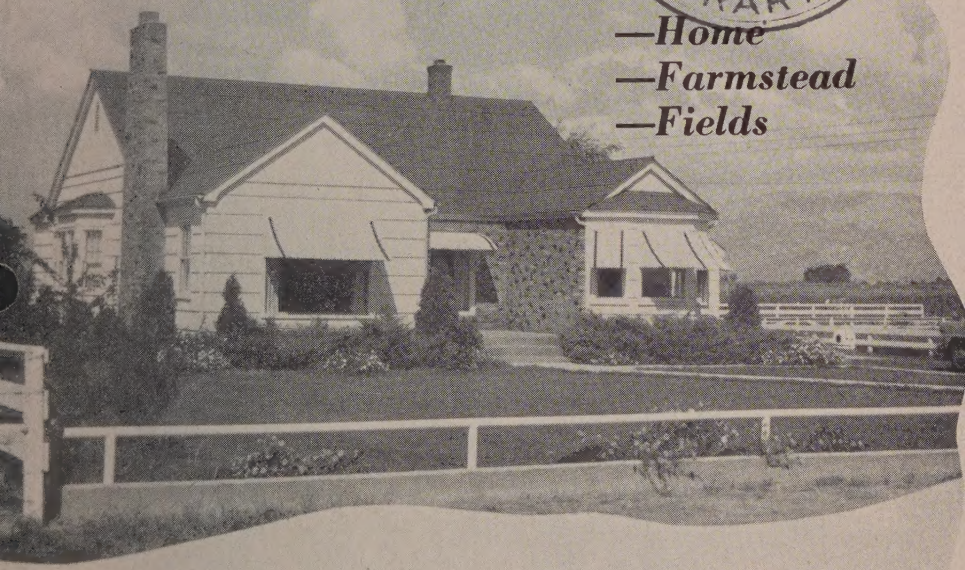

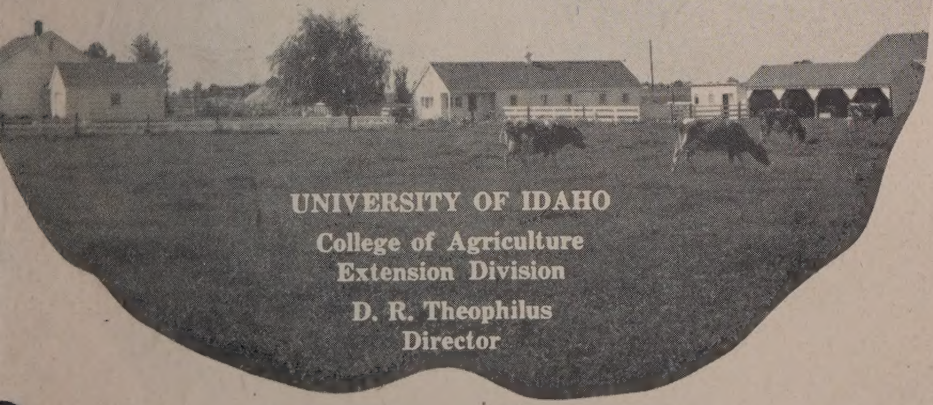

UNIVERSITY OF IDAHO
College of Agriculture
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COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS
OF THE STATE OF IDAHO UNIVERSITY OF IDAHO EXTENSION DIVISION
AND U. S. DEPARTMENT OF AGRICULTURE COOPERATING

Plan Your Farm for Good Farm Living

VIRGIL D. KENNEDY* and OWEN K. BROWN**

Farm families developing a new farm from raw land have the most need for farm-layout plans. But any farm family will find it a valuable experience to check up on their current plans and look for ways of improving them. The rapid change in agricultural technology often puts the farm layout out of date and makes modifications profitable. If you have just bought a farm you will certainly be interested in working out a plan of the farm and home as you want it to be.

The actual process of planning a farm layout reveals that the perfect farmstead rarely, if ever, exists. Improvement is always possible. Your farm layout must be designed for the most profitable level of operating efficiency. Poor arrangement may mean a serious annual drain on the working force. Labor or time saved makes other work or leisure possible. Some farms have to be treated with special care to save the soil. When slopes make contour farming advisable the whole farm may need to be laid out anew and lanes and interior fences relocated. Good irrigation practice is the first consideration in field layout on irrigated farms and may dictate a rearrangement of fields. Leveling may be possible to permit better use of water and better field layout. Small irregularly shaped fields waste machinery and labor. A revised layout may correct this.

A plan which works out a system of farming and living adapted to the individual farm and farm family is a step toward good balanced farming. In such a plan all members of the family decide what they want to do; what they have to work with; how they can more profitably use the available land, labor, and capital; and how fast they can expect to carry out their plan.

Planning an attractive, comfortable farm home has its own particular value. Satisfaction and pride in a farm home can be just as important as profitable business operations.

Choice of Farming System

Each type of farming is an outgrowth of the experience of groups of farmers in operating farms under the same physical and economic conditions in an area. Study the farms in your area

* Extension Farm Management Specialist, Boise, Idaho
** Extension Agricultural Engineer, Moscow, Idaho

and determine which type of farming seems most profitable and suitable to your locality. Select the type of farming you want to develop on your farm. Study the farming practices, buildings and improvements common to the type of farming you choose. These practices will largely determine the layout for your farm and farmstead.

Plan Flexibility for Possible Future Changes

Wherever possible, provide flexibility in your layout in the event you later want to change the type of farming. For example, locating your farmstead in the center of your road frontage rather than in a corner will give you more room to expand your lots and add more buildings if you desire. Clean ground for pigs may have to be seeded down and fenced. You may want to provide a poultry run near the garden plot and alternate this run with the garden plot in order to keep clean ground for the chickens and a high level of fertility on the garden plot.

Rotation of pastures over the entire farm is an excellent means of building soil fertility. Locating the farmstead and lanes so that all fields are readily accessible from the farmstead makes such a practice possible.

Planning Farm Building Investment

Design your farm home so that you need the least amount of effort to carry out your work. Landscape your outdoor areas for work, living, and play. The successful home plan is one in which compromises are made to give a livable, workable unit with an appearance of modest comfort.

When you plan your building investment keep the costs down to the point at which the probable increase in income will pay you back in a reasonable period of time. As a general rule, the successful building plan will avoid the cost of unnecessary refinement and decoration but will include convenience to save operating labor, sanitation to prevent loss among animals, and a reasonable degree of permanence and freedom from repair bills. It is important not to build buildings so permanently that they become obsolete and their cost is greater than their return. Be in a position to keep your buildings up-to-date and take advantage of new and modern ideas as they come along.

Cost Studies Show How Building an Animal Can Pay For

Studies have determined how much the various kinds of livestock can afford to pay for use of the barn, feed storage, and other buildings they need. This rent has been determined in percentage of gross income from the product of the female for the use of the building needed by her, the offspring, feed storage and all other building facilities. The amount varies with the kind of livestock — dairy cow, 10 per cent; beef cow, 8 per

cent; sow, 6 per cent; ewe, 7 per cent; and hen, 9 per cent. You will see from these figures that it is difficult to make livestock returns justify building costs.

Basic Procedure in Planning Farm Buildings

1. *Make an analysis of the size needed*.....Keep in mind the size of your farm, its productive capacity, your income, and your need.
2. *Plan for flexibility*.....Plan for changes in use.
3. *Plan for basic outlines or patterns*.....Base your plans on arrangement for effective work, sanitation, space, capacity, convenience, and such requirements established by experience, custom, or research.
4. *Plan by adaptation from typical to specific cases.* (a) Analyze the need or requirement, (b) Select a general or typical design that most nearly fulfills the requirements, (c) Modify the design to fit your limitations of size, materials, money environment, or intended use.

Expensive housing is not necessary for livestock.....Portable buildings are usually best for hogs and growing poultry. The grower of a small acreage of either potatoes or grain can rarily justify the cost of storage. Repair and maintenance, insurance, taxes and interest on the investment are all annual expenses and charges that must be met. These yearly expenses vary between 5 and 10 per cent of the original cost of the building, depending on the type of construction.

Some Questions to Answer Before You Make Your Final Decision

1. Is this building necessary right now? Could I get along with temporary construction until farm income is higher?
2. Would money spent for livestock or equipment bring greater returns?
3. Would a year from now probably be a more favorable time to build?
4. Does this building fit the long-time plan for the farm?
5. Will the cost and size of the building be in keeping with the size of my farm?
6. Will the use of this building pay me a return above annual maintenance expenses?
7. Will construction of the building use funds needed for family spending?

The Farm Survey

The next step in good farmstead planning is to obtain a contour map of the farm. There are several sources. In some areas contour maps have already been made by public engineers. If such a map is not available, hire a local engineer to make it or make your own survey. Idaho Extension Bulletin No. 171, "Using the Farm Level," will tell you how to use a level in making a contour map.

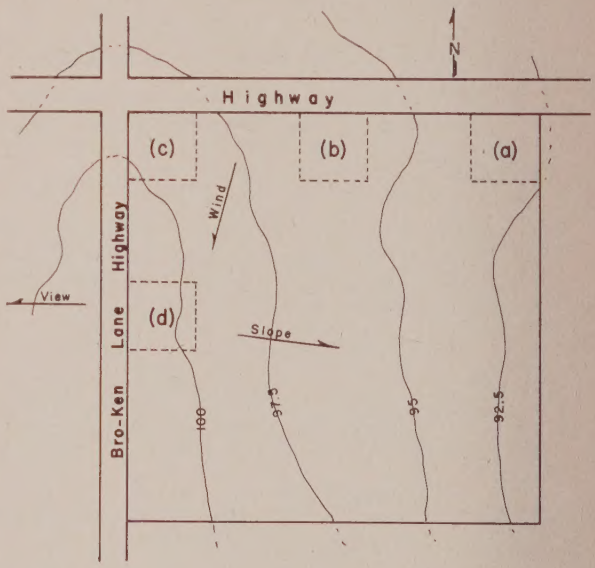

Figure 1. A contour map of your farm is easy to make and is an invaluable aid in planning.

Use of a Contour Map

A contour map such as Figure 1 will help you plan your field arrangement, irrigation system, and best possible farmstead location. Get assistance from an irrigation engineer to help lay out the irrigation system and field boundaries.

Selecting the Farmstead Site

Use your contour map in selecting the best site for your farmstead. On transparent overlay paper sketch in possible locations. Make alternate plans to stimulate thinking on details. Bring in ideas of the entire family. Four probable sites have been indicated in Figure 1. Here are some important points to consider in selecting the best site.

Location With Respect to Highways and Utilities

Accessibility to the school bus, power line, and telephone line is important. A year-round good road is a big factor in marketing farm products.

Location With Respect to the Rest of the Farm

In locating the farmstead, carefully consider the arrangement of the fields. Topography of the land, the irrigation system, drainage, soil conditions, location of natural pasture, and the general cropping scheme will influence your field arrangement. See that it is easy to get from the farmstead to your fields. This saves time. Excessively long lanes waste time and fencing. Small irregular shaped fields waste machinery, time and labor. Keep these in mind when planning the layout.

Elevation and Drainage

Good drainage is important. Locate the farmstead on higher ground so that the building site will be well drained. The higher elevation also offers a better view and good drainage for the house.

Water Supply—Domestic and Irrigation

Locate the farmstead as near to the water supply as is practical. Having the farmstead near the irrigation supply is an advantage. The well near the house is a "must". Plan so that you can irrigate the garden, orchard, and pasture from the irrigation water supply if the domestic well does not furnish enough water.

Nature of Soil

The garden, lawn, orchard, and windbreak make up a large portion of the farmstead and require good soil. It is better to sacrifice some crop-producing land for the building site than to handicap the garden or orchard with poor soil.

Orientation

Sunlight is one of the most potent enemies of disease. Design the farmstead arrangement to use the sunlight.

Prevailing Winds

Locate the farmstead and arrange the buildings so that prevailing winds carry barnyard odors away from the house.

Windbreaks

Make use of any available natural windbreaks if you can. However, natural windbreaks are located too often in the wrong place. It is usually better to put the farmstead in the most desirable location and then plant a windbreak where it will do the most good.

Protective tree plantings will make your farm much more livable. Well selected shade trees, effective windbreaks, and other tree plantings add both to the comfort and beauty of any farm. Protective plantings help produce greater gains on livestock fed in the protected areas. They reduce heating bills in protected homes and due to decreased wind erosion and improved growing conditions for the plants bring greater yields from fields.

Locate all windbreaks perpendicular to prevailing winds. When properly placed they will control snow and keep your barnyard and drives free of drifts during our occasional "bad" winters.

Locate farmstead windbreaks not closer than 100 feet to the windward side of the home as shown in Figure 2 and extend them 50 feet beyond the area that needs protection. See that a farmstead windbreak contains at least three rows of trees. Make the outside row next to the wind a tree of low, bushy growth. Use a tall, long-life tree in the middle row and a dense evergreen in the inside row. Two rows containing bushy and tall trees are enough for field windbreaks. See your county agent for recommended tree species for your area.

The Final Decision

Balance desirable field layout with the essential factors of a good farmstead location in making your final decision. Get all the desirable points possible while still retaining an efficient layout.

Let's look at the contour map in Figure 1 and select (d) as the best possible location considering the foregoing points.

Figure 2 shows the farmstead located at (d) and lists the advantages.

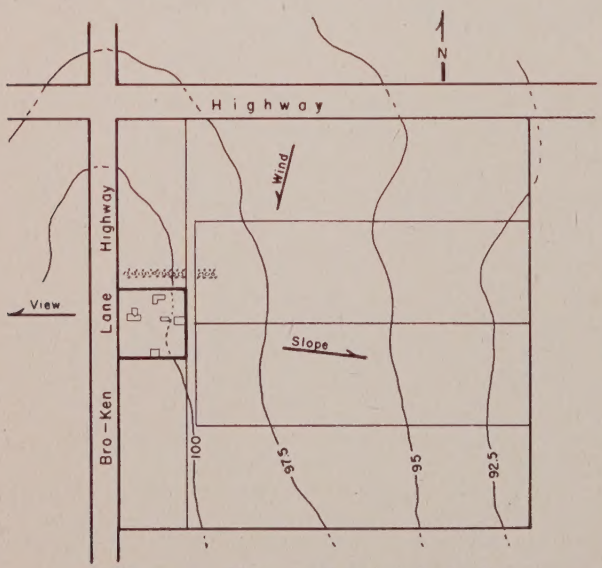

Figure 2. Farmstead Located at (d)

Advantages

Good soil

Good orientation

Wind blows odors away from house

Good Drainage

Good view

Water supply location good

Good, efficient location with respect to fields

Windbreak planting possible

Accessible to good highway

Arrangement of Buildings and Facilities

The House

With the site selected and the type of buildings decided upon, the next step is to plan arrangement of the buildings. Since the house is the center of the family activity, its location comes first. The most attractive farmsteads are those with the house and landscaped yards next to the highway. Important points to consider are:

1. Provide proper drainage away from the house.
2. Place the house up-wind from the barn area so odors will be carried away.
3. Place proper distance from the highway. Closer than 60 feet is undesirable because of dust, noise, and traffic danger to children.
4. Orient the house to take advantage of the best view and sunlight.

The Outbuildings

Whenever possible, locate the farm buildings behind and downwind from the house. Important points to consider in locating the farm buildings are:

1. Place the livestock buildings and corrals down-wind and down slope from the house.
2. To save time and labor, place the most-used buildings, such as the machine shed, shop, garage and poultry house, nearest to the house.
3. Plan the business buildings for efficiency. For example: If you are in the dairy business, plan a convenient arrangement for your dairy barn, milk parlor and milk house. Plan the arrangement so that it is not necessary to go through feed lots or corrals to reach the buildings. The central farm-court system of arrangement is most desirable to save chore steps.
4. Consider field arrangement when locating buildings and corrals.
5. Plan gates and cattle guards for easy access to fields.
6. Plan space for future buildings in the event of a possible change of type of farming.
7. Plan the arrangement so that buildings and corrals are visible from the rear entrance to the house.

How to Plan the Building Arrangement

Since we chose site (d) on our contour map in Figure 1, let's plan the building arrangement for it.

Step 1. On your sketch pad show the location of the highway, the direction of the wind, the direction of the slope, and the best view.

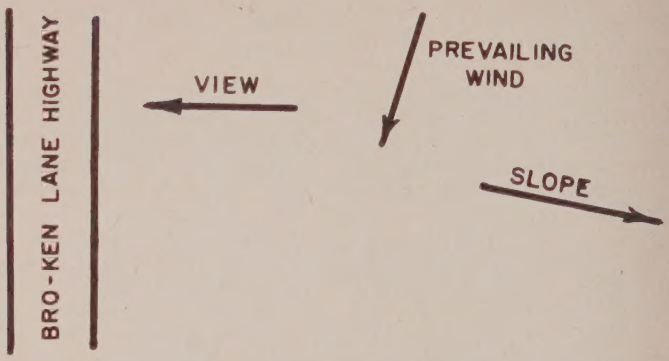

Figure 3. Illustrating Step 1

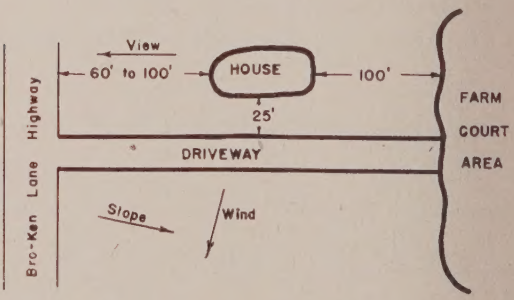

Figure 4. Illustrating Step 2

Step 2. Locate the *driveway, barn area,* and *house.* Remember it is desirable to locate the house up-wind and up-slope from the barn area and the highway. It is also desirable to place the driveway downwind and down slope from the house if possible. Make the driveway wide enough and plant trees and shrubs far enough back from the highway and lane to permit farm machinery and heavy trucks or hayracks to pass through. Make the driveway perpendicular to the highway and provide means to view traffic both directions.

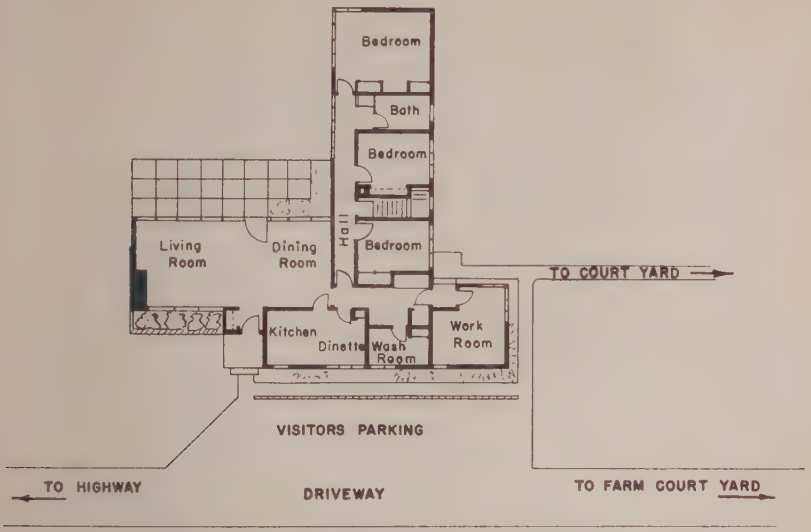

Figure 5. Illustrating Step 3

Step 3. Select house plans to fit the farmstead arrangement efficiently. Idaho Extension Bulletin No. 180 "Your Farmhouse —Plan it To Fit Your Needs" will help you plan your house.

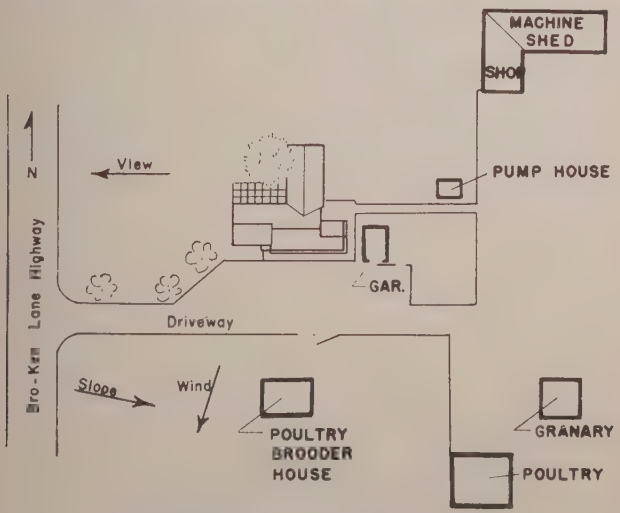

Figure 6. Illustrating Step 4

Step 4. Locate the most used buildings nearest to the house to save time and labor.

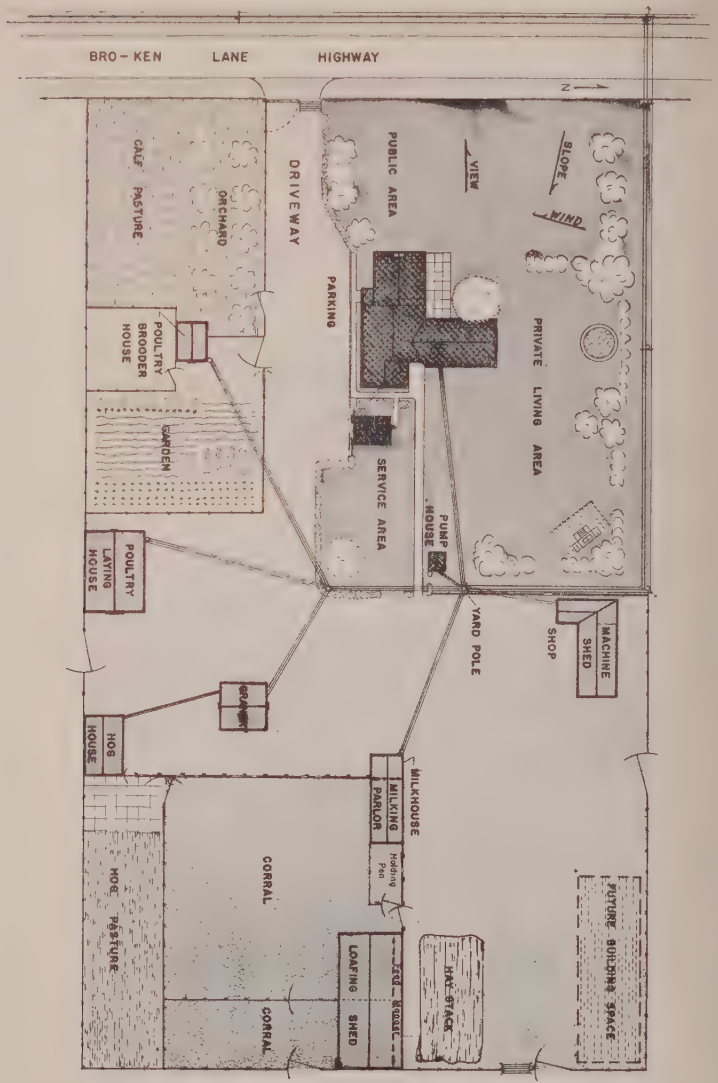

Figure 7. Illustrating Step 5

Step 5. Plan the business buildings for efficency. If you are in the dairy business, plan a convenient arrangement for the dairy barn, milking parlor, and milk house. Plan space for future buildings. Plan gates for easy access to fields.

Planning Farm Electrification

Agricultural engineers recommend the yardpole system of wiring for Idaho farmsteads. Place the yardpole near the load center to save wire and to give better voltage to all buildings. Lead the supply line around the yard so it will not interfere with traffic in the entrance lane. Plan your wiring for full use of electricity, and don't forget to plan for future additions. Adding a pressure water system, a new farm freezer, new laundry equipment, or a farm motor may overload the wiring system if you haven't planned it properly. Over-loading can be, and often is, costly and dangerous.

Figure 8. Yardpole System of Farmstead Wiring

It is important for your farm wiring to be of the safest kind. Use only approved materials and use them only according to the national safety code. Hire a competent electrical contractor—preferably a man in your own community—who has a reputation for good work.

If you wish to do your own wiring, be sure you KNOW what you're doing. Use the Farm Electrification Leaflets published by the Idaho Farm Electrification Committee, especially Leaflet No. 6, "Adequate Farmstead Wiring". These leaflets are available from the Agricultural Engineering Department at the University of Idaho. After the wiring is completed, have a licensed electrician inspect it for you. Faulty wiring *cannot* be protected by fuses. Pay attention to all safety tips.

Plan the wiring so it will not interfere with regular or sea-

sonal work in the farmyard. Place the yardpole so machinery will not run into it.

Put the well-pump motor on a separate circuit and locate the pump-house away from other buildings so that in case of fire you will have water with which to fight the blaze. Farm Electrification Leaflet No. 4 will help you design your farm water system.

Location of Sewage Disposal System

Locate the septic tank down slope from the house and at least 100 feet down slope from any water supply. The distribution system must be protected from livestock and heavy machine traffic. Your Extension Agricultural Engineer can give you complete information on the design and installation of sewage disposal systems.

Field Layout

Good irrigation is the first consideration in the irrigated farm's field layout. This may make it difficult to plan an ideal field arrangement for your farm. For example: Unevenly sloped land may make it necessary for you to plan irregular shaped and small fields in order to irrigate them. But irregular shaped and small fields require more machine labor. According to data from a recent economic study of farm layouts by W. I. Myers of Cornell University, a triangular field requires 20 per cent more machine labor than a rectangular field. Use as many of the good field layout principles as you can as long as they fit in with your irrigation plan.

Irrigating methods and length of run are determined by the texture and structure of the soil. In general, the approximate desired length of run on light textured soils is 330 feet; for medium textured soils, 440 to 550 feet: and for heavy textured soils, 660 feet.

Usually you will get the most efficient irrigation by using the shorter runs. However, your field operations are less expensive if you use longer runs. In actual practice the length of run will determine the distance to the next distributing ditch and will not necessarily determine the length of the field.

Ten Rules for Good Irrigation — Plan to Use Them

1. Irrigate only when the plants require moisture. Careful examination of soil moisture in the root zone of the crop is the best guide. Color of the crop cannot always be relied upon as a guide to the need for irrigation.
2. Furrow streams should reach the lower end of the field

quickly. The time required for this should not exceed one-fourth the total time required to irrigate the field.

3. Do not use streams that will cause erosion. If rule 2 cannot be satisfied without the stream causing erosion, then the irrigation run is too long.
4. Reduce size of furrow streams after water reaches the lower end of the field. Do not allow the surface waste stream from the field to exceed 10 per cent of that going onto the field.
5. Small streams soak the ground as well as large ones. Always use them if possible.
6. Don't oversoak! Drowning out the crop and leaching out plant food will result if you do.
7. Use shallow furrows if possible, particularly while the plants are small. At that time the root zone is shallow and water will move out horizontally from the furrow much faster thn it will climb upward.
8. Space the furrows or corrugations according to the way the soil wets beneath and out from the furrow. Pronounced lateral movement and little vertical penetration means that wide furrow spacing is best in that soil.
9. For less erosion, faster and more uniform wetting cut down the grade on which the water runs.
10. Use good headgates, outlets, and ditches. Without adequate water control, no one can irrigate properly.

If you decide on a sprinkler irrigation system, the field arrangement may have to be changed to permit maximum efficiency of the system as well as efficient operation of machinery.

The number of crop fields should equal the number of years required for one round of the rotation plus the rotation pasture. If this is impossible, several small fields or several strips across the slope may be kept in the same crop and cropped as one field.

It is desirable to have rectangular fields with the length at least twice the width. Square fields take less fence but take more time for field operations. Per acre fencing costs decrease as the size of the fields increases. Large fields promote efficiency in the use of labor, power, and equipment. Seed irregular fields to hay or pasture.

Lay out your crop fields so they are about the same size. This promotes uniformity in the feed supply and in the seasonal labor, power, and equipment load.

A field is easier to handle if it does not have major changes in soil or slope. For efficient machine operation remove all rocks, trees, and other field obstructions.

See that fields are as convenient to the farmstead as possible. This will avoid lost time in going to and from field work and will

make it more convenient to pasture all fields at some time in the rotation.

Using the foregoing recommendations and assuming we have a uniformly heavy-textured soil, let's take the farmstead arrangement in Figure 2 and design the irrigation and field layout.

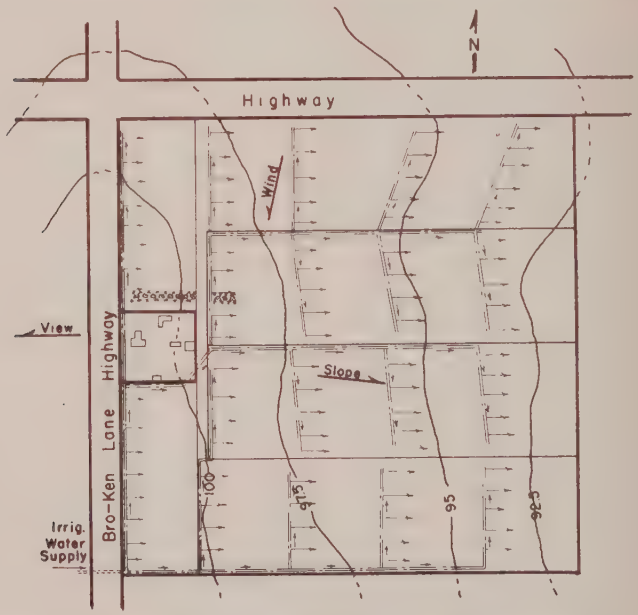

Figure 9. Contour map showing Irrigation Ditches and Field Layout.

1. The length of run for most of the fields is about 660 feet which is maximum according to recommendations.
2. The average grade for most of the fields is about .5′ per 100 feet which is within the range recommended for heavy-textured soils.
3. Most of the fields can be irrigated on the square, that is from west to east; however, some of the fields should be irrigated on an angle so the water will run straight down the slope.
4. Leveling the land by dragging the ridges into the swales would permit better handling of water.
5. The fields are rectangular and large enough for handling machinery efficiently.

Landscaping the Farm Home

An attractive farmstead entrance is the preview to a well landscaped farm home. The position of the driveway depends on how your farmstead is situated and on your farming operations. Design the entrance drive to be attractive and to bring visitors to the front door as shown in Figure 7. The island type drive or parking area off the entrance lane to the farm court is probably the most satisfactory. Make the entrance drive straight and to enter the highway at right angles for traffic safety. Shrubs and trees should not block vision at the highway intersection. Plant trees far enough back from the driveway to permit farm machinery and heavy trucks or hayracks to pass through.

The farmhouse with a spacious lawn gives a pleasant outlook and good appearance from the road. The area in front of the house, including the base or foundation planting, lawn, walks, trees, may be called the "public area". Treatment must be more or less conservative. The base planting ties the house to the ground. Do not cut the lawn up with walks and flower beds. Use the trees to frame the house, not to hide it. Rather than cut a nice lawn in half it is better to run the walk to the driveway if possible. Flagstones make useful walks.

Establish a good lawn. See Farmers' Bulletin No. 1677 entitled, "Planting and Care of Lawns," or the 1948 Agricultural Yearbook entitled "Grass".

Base plantings of shrubs around the house tie it to the ground if they fit the type of house. A low, flat-topped house requires a planting of low shrubs. The base planting should not be too wide, otherwise the house looks as if it were on a nest or brush pile. Vines may be used to good advantage. Don't use too many columnar or pyramidal evergreens. Shrubs need not be planted continuously around the house like a necklace. Leave spaces where the base of the house may be seen. Don't overplant. Plant only what is needed remembering the size the shrubs will eventually attain. Flowers are all right in the base planting both when it is young and also after it is old providing they are well-spaced and cared for.

Plant permanent trees that will always add to your home's appearance. Avoid the fast growers such as soft maple, poplar, catalpa, and box elder. Linden, oak, male green ash, and Norway maple make better trees. Don't plant trees in rows like an orchard. They look better if they are not in straight lines. Properly-planted trees framing the house will let you see people who pass by, and, in turn, the public will have a good view of your home.

Plant trees around the farmyard in groups rather than in a solid row around the edge. Make provision for family recreation in your farmstead plan. This is the "Private area" or outdoor living room where you, your family and friends may spend leisure

hours. To make it private and to screen off the other parts of the farmstead, enclose this area with a wall, hedge, or shrub border. Keep the trees to the side in order to have a nice big lawn. See that your shrub border has enough different shrubs or small trees in it to give you bloom the entire summer and good autumn coloring. This is the place for your flower beds. The round beds in the center are out of style. Place your flowers in borders next to the shrub border. An area of sod three feet wide between the shrub border and the flower border will provide a buffer to eliminate competition with the flowers from the roots of the shrubs. This border will also serve to give you access to work the back of the flower border and prune the shrubs without stepping on the flowers.

The outdoor living room for the average family may include picnic tables, chairs, lawn chairs, and an outdoor fireplace. If you want a lily pool, this is the place for it but keep it to the side.

The "service area" is what is left of the old-fashioned backyard. It includes the area where you place the garbage, ash cans and compost heap.

The clothes line may be placed in the service lawn area.

Landscaping can make the difference between just a place to live and a home. Of course it requires work, but the progressive farm family usually finds pleasure in landscaping. The result adds greatly to the justifiable pride each member of the family feels in having an attractive, well kept home.

CHECK LIST

The following list is a reminder of points to consider in planning your farmstead. Use it to recheck your plan. Can you fill the "YES" coulmn?

1. Is your plan a family effort? Yes..... No.....
2. Have you visited a neighbor with a farm similar to yours in search of ideas? Yes..... No.....
3. Is your farmstead located on a good highway? Yes..... No.....
4. Have you considered public utilities in your plan? Yes..... No.....
5. Are your fields easily accessible from the farmstead? Yes..... No.....
6. Do the prevailing winds carry barnyard odors away from the house? Yes..... No.....

7. Is there good drainage away from the house and buildings? Yes..... No.....
8. Do you have an adequate and convenient water supply? Yes..... No.....
9. Do you have good soil for the garden, orchard, and lawn? Yes..... No.....
10. Do your buildings take advantage of sunlight? Yes..... No.....
11. Did you plan for a windbreak for protection from wind and drifting snow? Yes..... No.....
12. Is your house more than 60 feet from the highway to avoid dust, noise, and traffic-danger to children? Yes..... No.....
13. Did you plan your house and buildings to fit your family needs? Yes..... No.....
14. Is your arrangement planned so you can see the farm buildings and corrals from the rear entrance to the house? Yes..... No.....
15. Are the most used buildings located nearest to the house? Yes..... No.....
16. Are your buildings planned and located for a minimum of chore travel? Yes..... No.....
17. Can you reach any building without going through a corral? Yes..... No.....
18. Did you plan space for future buildings? Yes..... No.....
19. Is your electrical set-up designed so it will not interfere with farm operations? Yes..... No.....
20. Did you use the central yard-pole system for more efficient use of electricty? Yes..... No.....
21. Did you correlate your irrigation system and field lay-out? Yes..... No.....
22. Did you plan your field lay-out for most efficient use of machinery and labor? Yes..... No.....
23. Do you plan to beautify the home grounds? Yes..... No.....
24. Did you plan your home grounds to provide a public area, a service area, and a private family area? Yes..... No.....
25. Are your buildings far enough apart for adequate fire protection? Yes..... No.....